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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,559	08/24/2006	Mathias Lutz	LUTZ, M.. ET AL-2 PCT	1580
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COLLARD & ROE, P.C. 1077 NORTHERN BOULEVARD ROSLYN, NY 11576			EXAMINER LOUDEN, CLIFFORD J	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,559	Applicant(s) LUTZ ET AL.	
	Examiner CLIFFORD J. LOUDEN	Art Unit 3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-12 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 2-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the:
 - a. disengaged joint parts of Claim 12;
 - b. plastic and/or elastic deformation of the inner/outer hub of Claim 3;
 - c. plastic and/or elastic deformation of the raceways of the inner hub of Claim 4;
 - d. radial widening of Claim 10;
 - e. geometrically and mechanically intact joint parts after disengagement of Claim 11; must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

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be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The Specification does not clearly indicate how the raceways of the inner hub can be locally plastically and/or elastically deformed versus such deformation of the joint in general.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 2-5, 7-11 & 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Jacob et al. DE10209933 (Jacob). Jacob shows in Figs. 1-4 a drive joint (1) for permitting a rotationally and axially fixed connection between a first (2) and a second (3) shaft sub-section of a drive shaft, said connection allowing a limited angular displacement, said drive joint comprising: an inner hub (4) as an inner joint part; an outer hub (7) as an outer joint part; and a torque transfer mechanism (5 & 6) between said inner hub and said outer hub as additional joint parts;

wherein when a certain axial force in the direction of one shaft sub-section towards the other shaft sub-section is exceeded, the joint parts disengage (inherent, given sufficient loading).

Claim 2: Jacob inherently discloses the outer hub (7) is configured as a deformation element (given sufficient loading).

Claim 3: Jacob inherently discloses the outer hub (7) is configured in such a manner that if a predetermined axial force on the drive shaft is exceeded, it allows disengagement of the inner hub from the outer hub, with plastic and/or elastic deformation. Given a sufficient loading and its metallic nature, the outer hub will undergo some degree of plastic and/or elastic deformation on its way to disengagement.

Claim 4: Jacob inherently discloses several raceways assigned to one another are provided in the inner hub (4) and the outer hub (7), in which balls (6) are accommodated to transfer torque, and a series of raceways of the inner hub (12 & 13) runs at a slant to the axis of the inner hub, and is configured in such a manner that the raceways of the inner hub can be plastically and/or elastically deformed when the inner hub and the outer hub disengage, by means of the balls, at least at their drive-side end. Given a sufficient

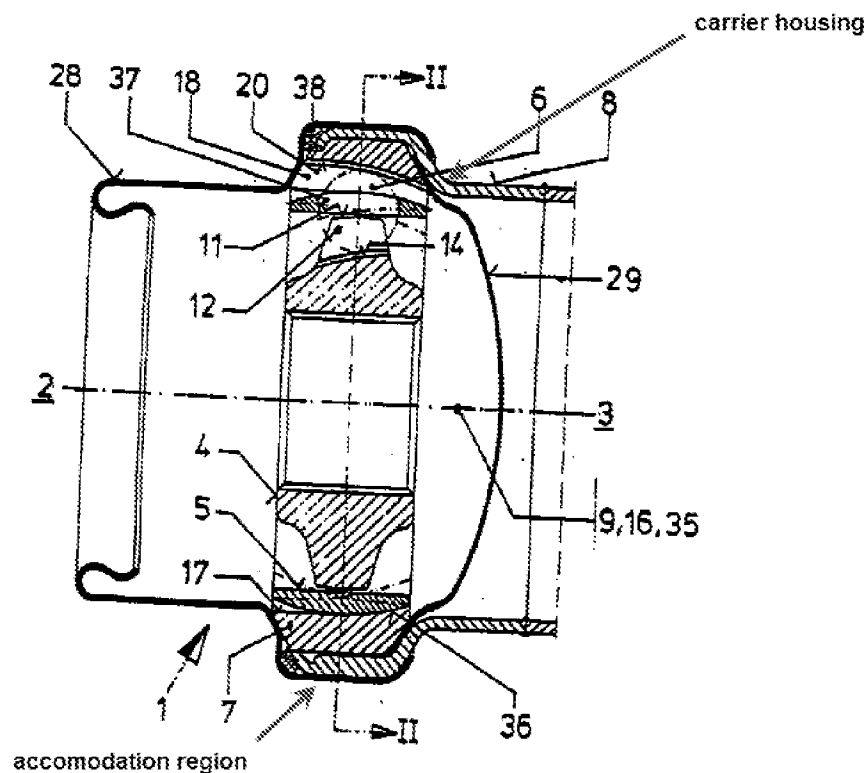
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loading and its metallic nature, the inner hub and its raceway will undergo some degree of plastic and/or elastic deformation due, at least in some part, to the balls which are in direct contact. Any translation of force (direct or reactionary) through the balls will affect their associated raceways causing plastic and/or elastic deformation when an axial force, sufficient to cause disengagement of the inner and outer hubs, is applied.

Claim 5: Jacob shows in Fig. 1 the inner hub (4) has an inner insertion gearing (i.e. splines) oriented coaxially to the axis of the inner hub, for accommodating an outer insertion gearing of one of the shaft sub-sections (inherent).

Claim 7: Jacob shows in Fig. 1 the joint (1) has a weld flange (8) for attachment to at least one of the shaft sub-sections on its drive-side and/or power-take-off-side end.

Claim 8: Jacob shows in Fig. 1 the outer hub (7) has a carrier housing having an accommodation region for the outer hub assigned to it, and that a lid (29) is wedged in between the accommodation region for the outer hub and the weld flange, on the inside of the carrier housing.



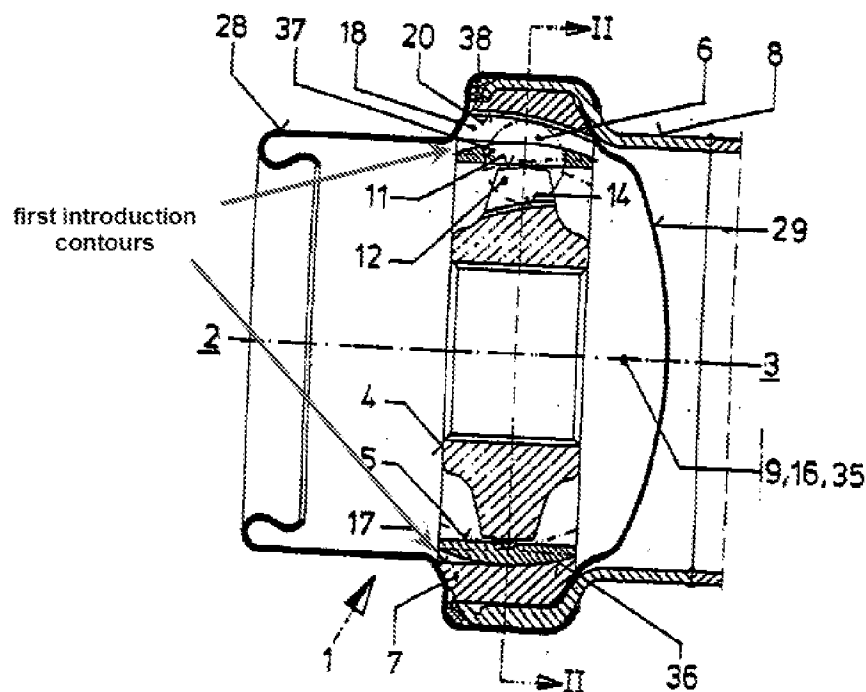
Claim 9: Jacob shows in Figs. 1-4 a drive joint (1) that has a drive-side end (2) and a power-take-off-side end (3), having an inner hub (4) that has an inner hub axis (9) and an outer contour (11), in which first inner running grooves (12) and second inner running grooves (13) are disposed, distributed alternately about the inner hub axis, whereby the first inner running grooves run proceeding from the drive-side end in the direction of the power- take-off-side end, and their groove root (14) moves away from the inner hub axis as this happens, and whereby the second inner running grooves run proceeding from the power-take-off-side end in the direction of the drive-side end, and their groove root (15) moves away from the inner hub axis as this happens, an outer hub (7) that has an outer hub axis (16) and an inner contour (17), in which first outer running grooves (18) and

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second outer running grooves (19) are disposed, distributed alternately about the outer hub axis, and the first inner running grooves lie opposite first outer running grooves, and the second inner running grooves lie opposite second outer running grooves, in each instance, and form a pair with them, in each instance, whereby the first outer running grooves run proceeding from the drive-side end in the direction of the power-take-off-side end, and their groove root (20) approaches the outer hub axis as this happens, and whereby the second outer running grooves run proceeding from the power-take-off-side end in the direction of the drive-side end, and their groove root (21) approaches the outer hub axis as this happens, a ring-shaped cage (5) having a spherical outer surface, which is disposed between the inner hub and the outer hub, and has radial windows (37), in accordance with the number of running groove pairs, in which balls (6) that engage in the running grooves are guided, and whereby the cage is guided to be centered in the outer hub (see Fig. 4), first introduction contours (see below) provided in the inner surface of the outer hub, which are disposed on both sides of the first outer running grooves and make a transition, from the drive-side end, at a diameter that at least approximately corresponds to the outside diameter of the cage, at least approximately after half the axial length of the outer hub, into first cage centering surfaces that run at an incline in the direction of the cage axis, and are configured to be ball-shaped, in accordance with the spherically shaped contact surfaces of the cage, second introduction contours (not shown, though inherently included as these would be found opposite those of the first outer running grooves) provided in the inner surface of the outer hub, which are disposed on both sides of the second outer running grooves and make a transition, from the power-

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take- off-side end, at a diameter that at least approximately corresponds to the outside diameter of the cage, at least approximately after half the axial length of the outer hub, into second cage centering surfaces that run at an incline in the direction of the cage axis, and are configured to be ball-shaped, in accordance with the spherically shaped contact surfaces of the cage, whereby centering of the cage takes place exclusively in the outer hub (via first cage centering surface 22 & second cage centering surface 23), and centering of the inner hub relative to the outer hub takes place exclusively by way of the balls (see Fig. 1).



Claim 10: Jacob shows in Fig. 1 at least the contour of the second inner running grooves (13), and/or the contour of the first cage centering surfaces of the outer hub (7), and/or the contour of the spherical outer surface of the cage, and/or the elasticity of the outer

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hub, are coordinated with one another in such a way that radial widening is made possible at least in the region of the second outer running grooves, by way of the balls (6) of the second row that are displaced radially outward (inherent given a sufficient force vector).

Claim 11: Jacob shows in Figs. 1-4 a drive joint (1) for a motor vehicle, which can be connected with a first shaft sub-section (2) and a second shaft sub-section (3), whereby the drive joint has an outer joint part (7) and an inner joint part (4) disposed axially within the former, in which ball raceways (see 12, 13, 18 & 19) are formed on the inside of the outer joint part and on the outside of the inner joint part, and in which balls (6) are disposed in the ball raceways and spaced apart from one another by means of a ball cage (5), wherein the joint is designed such that when a certain axial force in the direction of one shaft sub-section towards the other shaft sub-section is exceeded, the joint parts disengage, wherein ridges that point radially inward are formed between the ball raceways of the outer joint part, which are shaped and dimensioned in such a manner that the ball cage remains geometrically and mechanically intact, to a great extent, after disengagement of the joint parts, if an axial force that leads to the inner joint part and the outer joint part being pushed into one another is exceeded. Given sufficient loading, disengagement between the outer and inner hubs will occur. Stress-relief groove (26) is provided to allow for displaced material and would thus serve as a means to assist in retaining the geometric and mechanical integrity of the device.

7. Claims 6 & 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Jacob, US 6,241,615 (Jacob-II). Jacob-II shows in Figs. 1 & 7-8 a drive joint for permitting a rotationally

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and axially fixed connection between a first and a second shaft sub-section of a drive shaft (Col. 4, L49-55), said connection allowing a limited angular displacement, said drive joint comprising: an inner hub (3) as an inner joint part; an outer hub (1) as an outer joint part; and a torque transfer mechanism (4 & 5) between said inner hub and said outer hub as additional joint parts; wherein when a certain axial force in the direction of one shaft sub-section towards the other shaft sub-section is exceeded, the joint parts disengage (inherent, given sufficient loading).

Claim 6: Jacob-II shows in Figs. 1 & 7-8 the inner hub (3) has a ring groove on its drive-side end, as an assembly aid.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CLIFFORD J. LOUDEN whose telephone number is (571)270-5504. The examiner can normally be reached on Monday through Thursday, 8:00AM to 4:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on (571)272-7087. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Greg Binda/
Primary Examiner, Art Unit 3679

/CLIFFORD J LOUDEN/
Examiner, Art Unit 3679
May 8, 2009